SEEDS Standards Process

Richard Ullman
SEEDS Standards Formulation Team Lead
Richard.E.Ullman@nasa.gov

SEEDS

- The Strategic Evolution of ESE Data Systems is:
  - A strategy for ESE to maximize the science and applications utility of ESE data.
  - A formulation study of best practices in ESE data systems.
  - A process for incorporating lessons learned from past and present ESE data systems into new data system implementations.
  - A tool for engaging communities of ESE data providers and users in the SEEDS strategy.
  - NOT a data system development or implementation project or program - a strategy that applies to implementing organizations.

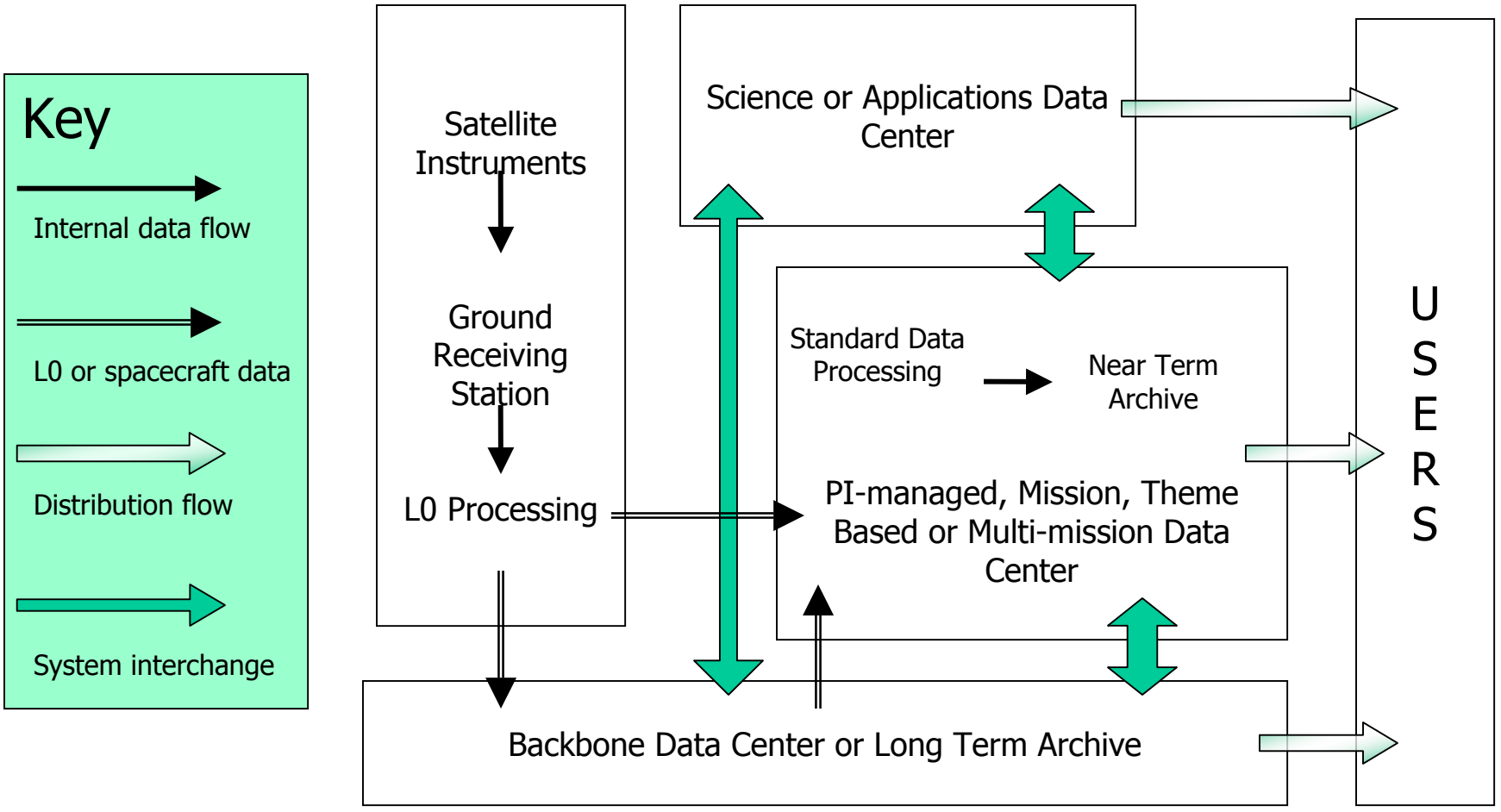
SEEDS Formulation Status

- Seven formulation study areas
  - Cost Estimation
  - Data Lifecycle
  - Reference Architecture and Reuse
  - Metrics
  - Technology Infusion
  - Standards Processes
  - Near Term Missions Standards
- Schedule
  - SEEDS Formulation team has developed an integrated Formulation Report and is presently working through GSFC, HQ, and external review process prior to release.
  - Third SEEDS Public Workshop - March 19-21, 2003 Annapolis

SEEDS Standards Premise

- "An important premise underlying [SEEDS] is that its various parts should have considerable freedom in the ways in which they implement their functions and capabilities. Implementation will not be centrally developed, nor will the pieces developed be centrally managed. However, every part of [the ESE network] should be configured in such a way that data and information can be readily transferred to any other. *This will be achieved primarily through the adoption of common interface standards and practices*." [SEEDS pre-formulation document]
- Standards are what make increased flexibility for SEEDS participants possible.

Simplified Data Flow Diagram

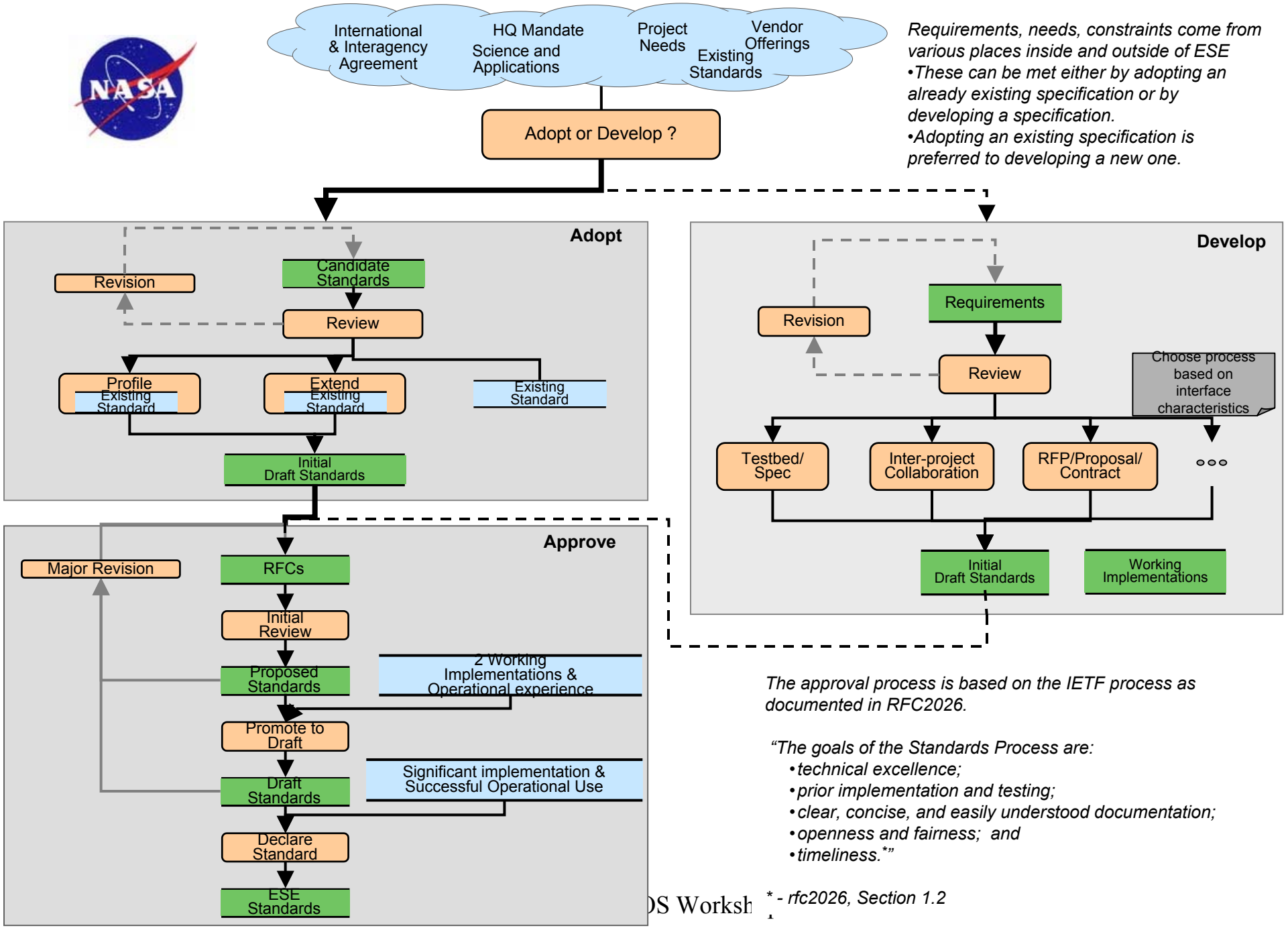


SEEDS Standards Process

- Standards Process Study has made recommendations to the SEEDS formulation
  - For approving and developing standards for the ESE network of data systems and services throughout the SEEDS era.
  - Types of standards to be addressed by these processes:
    - Distributed information search protocols (e.g., EOSDIS V0, Z39.50)
    - Data interface standards (e.g, OGC Web Map Services, DODS)
    - Data distribution packaging standards (e.g., HDF/HDF-EOS)
    - Data interchange packaging standards (e.g., HDF/HDF-EOS)
    - Metadata and documentation standards (e.g., GCMD DIF, ESML)
    - Service documentation standards (e.g., GCMD SERF)
    - Service communication protocols (e.g., UDDI, WSDL, SOAP)

SEEDS Standards Process

- Recommended process should have elements similar to the IEFT process
- Preference should be given to adoption over development
- Standards should have demonstrated implementation relevant to ESE.
- Process should be guided by a “Standards Working Group”
  - Members to be drawn from NASA ESE funded activities
    - Awardees of the REASoN CAN
    - Representatives of NASA ESE mission science and project teams
    - ESE Applications Office representation



Requirements, needs, constraints come from various places inside and outside of ESE
•These can be met either by adopting an already existing specification or by developing a specification.
•Adopting an existing specification is preferred to developing a new one.

The approval process is based on the IETF process as documented in RFC2026.

"The goals of the Standards Process are:
- *technical excellence;*
- *prior implementation and testing;*
- *clear, concise, and easily understood documentation;*
- *openness and fairness; and*
- *timeliness.*"*

** - rfc2026, Section 1.2*

Standards Process Status

- SEEDS in FY'03 is in "transition" from formulation.
- Refinement of process recommendations and status of concurrence by NASA management will be discussed at next community workshop
  - March 19-21 @ "Historic Inns of Annapolis"
- Standards Study Formulation Team is preparing for initiation of Standards Working Group.
  - Group may be initiated shortly after community workshop
  - Initial focus will be organizational
  - Hope to rapidly begin consideration of "ratifying" standards already in wide use within ESE (such as HDF)

SEEDS Near-Term Study Findings

- Requirements for system interchange among ESE components are different from requirements for distribution to end-users.
  - System interchange packaging standards must focus on interface standardization, completeness, and correctness of transfer over “ease of use”.
  - The primary requirement for distribution to end-users is “ease of use”.
- In the near-term, the chief mode of delivering data remains the transfer of discrete files.
  - Data format is the critical component of data packaging.

SEEDS Near-Term Study Findings

- The use of a general standard is insufficient for interoperability.
  - A common “profile” of the standard is required.
  - “profile” is a convention for use of a standard within a user community.
  - “Community-based” standards and profiles of standards, are preferable
- Evolution of standards for mission science data over the lifetime of the mission and beyond is inevitable. These include standards for:
  - Data formats.
  - Catalog interfaces.
  - Associated metadata content and format.
  - Documentation standards

More SEEDS Information

- Get reports here:
  http://eos.nasa.gov/seeds